

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

MONTHLY LETTER OF THE BUREAU OF ENTOMOLOGY
UNITED STATES DEPARTMENT OF AGRICULTURE

Number 83

March, 1921

TRUCK-CROP INSECT INVESTIGATIONS

F. H. Chittenden, Entomologist in Charge

B. L. Boyden recently reported the investigation of a small infestation of the sweet-potato weevil in the interior of Florida at Lily, Polk County. He states that only eight infested farms exist in the Lily district, and that these are practically isolated from those of other growers in the same county. Sweet potatoes are grown the year around and dug as needed, therefore the eradication system will be somewhat complicated. The growers are of a different type and the cultural practices are somewhat different, so that to undertake this project will bring some new ideas into practice. No natural host plants occur in that vicinity. In Baker County, Fla., and in the southern Mississippi draw delivery will soon be under way and will occupy a large part of the coming two months. About 2,500,000 draws will be delivered in both localities.

The organization for prevention of spread of the Mexican bean beetle in Alabama is rapidly taking form. J. E. Graf, who has been in charge of sweet-potato weevil eradication field work, has been placed in charge of the field work of the new project.

Neale F. Howard, working under Mr. Graf, will be in charge of the research branch of the bean beetle work.

Luther Brown, formerly of the State Plant Boards of Florida and Mississippi, has accepted an appointment to take charge of quarantine and regulatory work relating to the Mexican bean beetle.

L. L. English of the Alabama Experiment Station has accepted an appointment as assistant to Mr. Howard in field experiments and will cooperate with Dr. W. A. Thomas of that station.

Dr. W. E. Hinds of the Alabama Experiment Station has been appointed collaborator and will assist the campaign for the prevention of the spread of the Mexican bean beetle in an advisory and consulting capacity.

Neale F. Howard reported March 17 that the Mexican bean beetle was appearing in such numbers at Birmingham, Ala., as to indicate that 20 to 25 per cent had successfully passed hibernation. This shows a remarkably high over-wintering percentage and indicates that the beetle is likely to spread widely during the coming summer and to cause great damage in the present infested area. One cluster of 50 eggs has already been found. It will be interesting to ascertain whether the cold weather of March 28-31 has produced any unexpected effect on the recently emerged beetles. In Colorado adults usually appear not sooner than the middle of May to June 1.

Predacious maggots apt to be mistaken for injurious forms.- The recent acquisition of two species of Muscidae, reported as having been reared from beans the present season, has suggested that a note be made public in regard to the habits of these species. They are identified as Muscina assimilis Fall. and M. stabulans Fall. by Dr. J. M. Aldrich, who states that both species are predacious in the larva stage upon other dipterous larvae. He writes that while quite small they may feed on decomposing vegetable matter, but that they soon turn from this habit and prey upon larvae belonging to such genera as Fannia, Drosophila, and phorids, which in turn attack decomposing vegetables, and refers to Keilin (Parasitology, v. 9, p. 325-450, 405, 415; 1917). He also calls attention to the fact that field workers often send these parasites in as flies merely because adults are found in cages where they have been rearing some phytophagous forms and have allowed rotting vegetable matter to accumulate.

INSECT PEST SURVEY

J. A. Hyslop, Entomologist in Charge

In response to resolutions adopted at the Chicago meetings, December 29-31 of the American Association of Economic Entomologists, the Bureau has undertaken to begin once more an Insect Pest Survey. The objects of this survey will be the collecting and disseminating of information of the status of insect pests throughout the country, including both native and well-established foreign pests, and those of more recent introduction; to give information on the first appearance of migratory pests so that where possible precautionary measures can be taken; to accumulate whenever possible information on fall and winter conditions of such pests as a basis for forecasts. An additional important feature of the work of this survey will be the preparation of a report on careful estimates of damage occasioned by insect pests to the more important crops.

In the absence of any present Federal appropriation to support such a survey, the work of each State must necessarily be conducted by State officials and through available State organizations and the existing force of field workers of the Bureau of Entomology.

The plan of organization suggested will involve for this Bureau the general supervision of the work as already indicated and the issuance of the information in the form of monthly reports, to be supplemented by a comprehensive annual report, and special reports on particular crop pests from time to time. The annual summaries will include seasonal, geographic, and ecologic maps, correlated weather and abundance tables, and damage estimates.

With respect to the work which will fall to the States, it is proposed that this Bureau shall designate a State collaborator, or collaborators, who will have full charge and direction of all survey work in each State, including the collection of all reports from their assistants, county agents, farmers, and others, and the preparation of same for monthly reports and, in

case of need, emergency reports. When the Bureau maintains, on some specific project such as the corn borer and the pink bollworm, extensive local and regional surveys, this work will, as heretofore, be directed by the branches of the Bureau.

Forty-eight entomologists have already accepted their appointment as insect pest reporters for this work. Five emergency reports have been issued covering items of timely interest to the regions to which they were sent.

The first monthly Insect Pest Survey Bulletin will be issued May 1.

BEE-CULTURE INVESTIGATIONS

E. F. Phillips, Apiculturist in Charge

W. J. Nolan has been appointed apicultural assistant and will continue the work begun in 1920 on the rate of development of the colony in the spring as influenced by various methods of wintering.

Dr. E. F. Phillips attended a meeting of the Maryland State Beekeepers' Association at Baltimore on March 18, the annual meeting of the West Virginia Beekeepers' Association at Charleston, March 25-26, and a special meeting of beekeepers during Farmers' Week at the University of Maine, Orono, on March 30.

A fund is to be raised to establish a fellowship for research in Bee-keeping in memory of Dr. C. C. Miller, for so many years a leader in American Beekeeping. Mr. C. P. Dadant, Hamilton, Ill., is chairman of the committee. It has been requested that contributions in any amount be made on June 11, at which date Dr. Miller would have reached the age of 90 years.

SOUTHERN FIELD-CROP INSECT INVESTIGATIONS

J. L. Webb, Entomologist Acting in Charge

K. B. McKinney, who was temporarily transferred to the Federal Horticultural Board, returned to the Bureau on February 21. He has been granted a furlough on account of ill health.

Geo. H. Bradley also returned to the Bureau on March 5, from the Federal Horticultural Board.

M. T. Young, R. C. Gaines, and W. R. Smith will return to the Bureau on April 1.

Wallace E. Haley has been given a permanent appointment as field assistant in insect control and assigned to the sugar-cane insect laboratory at New Orleans, La.

Dr. W. D. Hunter was in Washington from March 21 to March 26.

The manuscript of a Farmers' Bulletin entitled "The sugar-cane moth borer" has been submitted by T. E. Holloway.

FRUIT INSECT INVESTIGATIONS

A. L. Quaintance, Entomologist in Charge

Theodore Henry Faison, a graduate of the University of Illinois, has been appointed scientific assistant and assigned to duty at Riverton, N. J., in connection with the Japanese beetle project.

John B. Gill, who has been in charge of the Bureau's laboratory at Brownwood, Tex., has been temporarily transferred to Fort Valley, Ga., where he is assisting in connection with plum curculio control operations.

B. A. Porter, who has been in Washington temporarily, has returned to his headquarters at Wallingford, Conn., to resume his investigations of apple insects.

C. E. Johnson has been appointed field assistant and assigned to duty at Bentonville, Ark., where he will assist in connection with apple insect investigations.

C. H. Brannon, a graduate of the Mississippi Agricultural College, has been appointed field assistant and assigned to duty at Fort Valley, Ga., to assist in connection with plum curculio control operations.

CEREAL AND FORAGE INSECT INVESTIGATIONS

W. R. Walton, Entomologist in Charge

F. L. O'Rourke, attached to the corn borer research work at Arlington, Mass., will resign from the service, effective about April 15.

C. N. Ainslie will return from Knoxville, Tenn., to his station at Sioux City, Iowa, about April 10, where he will be stationed for the remainder of the working year.

Stewart Lockwood, formerly extension entomologist of North Dakota, has been appointed specialist in Orthoptera for Federal grasshopper work in the northwestern States. Mr. Lockwood's appointment took effect April 1. He will be stationed at Fargo, N. Dak., and cooperate with the various State and Canadian officials in the grasshopper work throughout his territory.

Philip Luginbill, who recently visited Washington for consultation and to prepare a manuscript, has returned to his field station at Columbia, S.C.

D. W. Jones, in charge of the investigations of parasites affecting the European corn borer at Arlington, Mass., recently visited Washington for the purpose of consultation with the parasitologists of the Bureau.

W. R. Walton, L. H. Worthley, and D. G Caffrey visited the western New York area of infestation during the week of March 21. The party was engaged for the greater part of the time in going over the control work which is being carried on in the Silver Creek sweet corn district for the purpose of reducing the intensity of the infestation and the possible prevention of spread. It was found that the work was progressing very favorably under the personal supervision of L. H. Worthley, as the weather conditions were very favorable for burning, and about three fourths of the material has been disposed of in this manner. It is believed that this work will be completed during the first week of April. The area actually treated comprises some 800 to 1000 acres over which the cornstalks and stubble were removed and either burned or crushed.

Members of the party also visited the Thoras Indian School in company with Doctor Bates of the Cornell Station staff, who is interested in persuading the Indians to clean up the infestation on the Reservation. It is believed that through his efforts their full cooperation will be secured.

LIBRARY

Mabel Colcord, Librarian

New Books

American Journal of Tropical Medicine - official organ of the American Society of Tropical Medicine. Monthly. v. 1, no. 1, January, 1921. Baltimore, Williams & Wilkins Company.

Blyth, A. W. Poisons; their effect and detection... 5th ed. 745 p., illus. London, 1920.

Britton, W. E. Checklist of the insects of Connecticut. 397 p. Hartford, Published by the State, 1920. (Conn. State Geological Survey. Bul. 31.)

Brues, C. T. Insects and human welfare. 104 p., illus. Cambridge, Harvard University Press, 1920.

Great Britain - War Office. Observations on Malaria. By medical officers of the army and others.... Ed. by Sir Ronald Ross. 342 p., illus., maps. London, H. M. Stationery Office, 1919.

Lloyd, J. T. The biology of North American caddis fly larvae. 124 p., illus. Lloyd library of botany, pharmacy, and materia medica. Bul. 21 (Entom. ser. 1). Cincinnati, Ohio, J. U. & C. G. Lloyd, 1921.

Mally, C. W. The maize stalk borer, Busseola fusca, Fuller. 111 p., illus. Cape Town, Cape Times limited Government printers, 1920. (Union So. Africa Dept. Agr. Bul. no. 3, November).

- Marchand, Werner. The early stages of Tabanidae(horse-flies). 203 p., 13 pl. N. Y. The Rockefeller Institute for medical research, 1920, Monograph of the Rockefeller Institute for medical research no. 13.)
- Martini, E. Anopheles in der naheren und weiteren umgebung von Hamburg und ihre voraussichtliche bedeutung für die volksgesundheit. 32 p. fold. pl. Hamburg, L. Friederichsen & Co., 1920. (Abhandlungen aus dem gebiete der naturwissenschaften, hrsg. vom Naturwissenschaftlichen verein in Hamburg. Bd. XXI, Kft. 2.)
- Mees, C.E.K. The photography of colored objects. 4th ed. 102 p., pl. Rochester, 1920.
- Pierce, W. D. Sanitary entomology - the entomology of disease, hygiene and sanitation.... 518 p., illus. Boston, Richard G. Badger, The Gorham Press, 1921.
"Tabulation of diseases and insect transmission," p. 473-497.
- Pusa, India. Report of the proceedings of the 3rd entomological meeting held at Pusa on the 3rd to 15th, February 1919... Ed. by T. Bainbridge Fletcher, 3 v., pl. Calcutta, Superintendent government printing, India.
- Royal Society, London. Grain pests (War) committee. Report No. 10, 16 p. London, Harrison & Sons, ltd., Feb. 1921.
- Schroder, Chris. Handbuch der entomologie, Lief 5, v. 5, p. 113-208, illus. Jena, Verlag von Gustav Fischer, 1920.
- Seabra, A. F. de Etudes sur les maladies et les parasites du cacaoyer et d'autres plantes cultivees a S. Thome VII. Quelques observations sur le "Thrips" du cacaoyer... 23 p., illus. Lisbonne, Imprimerie de la Librarie Ferin, 1919.
- Skilling, W. T. Nature-study agriculture. A textbook for beginners. 332 p., illus. Yonkers-on-Hudson, N.Y., World Book Company, 1920. (New-world agriculture series.)
- U. S. Geological Survey. The preparation of illustrations for the reports of the U. S. Geological Survey. By John L. Ridgway. Washington, Government Printing Office, 1920.

MONTHLY LETTER OF THE BUREAU OF ENTOMOLOGY
UNITED STATES DEPARTMENT OF AGRICULTURE

Number 84

April, 1921

TRUCK CROP INSECT INVESTIGATIONS

F. H. Chittenden, Entomologist in Charge

W. H. White has recently made two trips into the early potato region of Virginia and Maryland, for the purpose of investigating an outbreak of the seed-corn maggot or bean fly in its attack on new potatoes. The injury to potatoes is due only partially to the attack of the seed-corn maggot, being complicated by an outbreak of a fungus belonging to the genus Fusarium, which appears at times to follow the attack of the maggot, while in other cases it acts singly and independently. Investigations towards the northern portion of the Maryland peninsula indicate that the fungus alone is a material factor in the damage, while the insect injury is predominant on the mainland, evidently being alone responsible in many cases. The fly of the seed-corn maggot is attracted to the potato field by decaying organic matter used in fertilizers, such as fish, tankage, and dried blood, as is also the case in fields in which kale and crimson clover have been plowed under.

J. E. Graf, in charge of the field work in Mexican bean beetle control, reports that the late frost which reached Birmingham, Ala., killed growing beans to the ground over almost the entire infested territory, but the severe frost seems to have caused no reduction whatever in the numbers of the beetles. Inspection work and regional quarantine measures have been begun in preparation for the Federal Horticultural Board Quarantine effective May 1.

B. G. Sitton, inspector of the State Plant Board of Alabama, has been appointed for a temporary period to organize and secure the thorough cooperation of the railroads and other common carriers of the State of Alabama with the United States Department of Agriculture with reference to the enforcement of the Federal Horticultural Board Quarantine No. 50.

The following have been appointed to act as district inspectors in connection with the enforcement of Quarantine No. 50 against the Mexican bean beetle: Fred P. Bickley, T. F. Catchings, F. R. White, L. W. Brannon, M. H. Atwood, O. Z. Smith, and H. B. Lancaster.

James R. Douglass, of Clemson College, S. C., has accepted an appointment to assist Neale F. Howard in research work against the Mexican bean beetle.

W. A. Thomas has been appointed to investigate truck crop insects in the vicinity of Chadbourn, N. C., at which point he will be stationed. It will be remembered that Mr. Thomas acted as Extension Entomologist during the recent war.

SOUTHERN FIELD CROP INSECT INVESTIGATIONS

J. L. Webb, Entomologist Acting in Charge.

Dr. W. D. Hunter and B. R. Coad spent the greater part of the month in the Laguna district of Mexico in connection with the pink bollworm problem.

F. C. Bishopp of the Dallas Laboratory is in New York State where a series of experiments in ox warble control among dairy cattle is to be carried on.

The following have been appointed to positions on the boll weevil force at Tallulah, La.: Melville Kearney, John W. Couch, Richard H. Flake, and Adolph Thomae.

W. R. Smith and R.C. Gaines have been transferred from the Federal Horticultural Board to the boll weevil force at Tallulah, La.

LIBRARY

Mabel Colcord, Librarian

New Books

Brues, C. T. Correlation of taxonomic affinities with food habits in Hymenoptera, with special reference to parasitism, American Naturalist, v. 55, no. 637, p. 134-164, March-April, 1921.
Bibliography, p. 159-164.

Carpenter, G. H. Injurious insects and other animals observed in Ireland during the years 1916, 1917 and 1918, Royal Dublin Society, Economic proceedings, v. 2, no. 15, p. 259-272, pl. XX-XXIII. Nov. 1920.

Chittenden, F. J. The garden doctor: plants in health and disease, 154 p., plates. London, Office of "Country Life, Ltd." 1920.

Dana, J. C. A library primer. xii, 263 p., illus. Boston, New York, (etc.,) Library Bureau (1920.) (Contains lists of books for small libraries.)

Eckstein, Fritz Die einheimischen stechmücken ... 58 p., illus. München, Verlag Natur und Kultur, Dr. Franz Josef Viller, 1920. (Einzeldarstellungen aus dem Gebiet der angewandten naturwissenschaften hrsg. von Dr. Hans Walther Frickhiner, München, Nr. 3.)

Fletcher, T. B. Life-histories of Indian insects - Microlepidoptera I. Pterophoridae. 217 p., 68 plates. Calcutta and London, Thacker, Spink & Co., Nov., 1920. (Memoirs of the Dept. of Agr. in India, Ent. Ser., v.6, no. 1-9.)

Goetghebuer, M. Ceratopogoninae de Belgique. 116 p., illus. Bruxelles, Hayez, Imprimeur de l'Académie royale de Belgique, 1920. (Mémoires du Musée royal d'histoire naturelle de Belgique, v. 8, no. 3.) Distributed September 15, 1920.

Goot, P. van der Beiträge zur kenntnis der holländischer blattläuse - eine morphologisch-systematische studie. 600 p., 8 plates. Haarlem, H.D. Tjeenk Willink & Zon; Berlin, R. Friedländer & sohn, 1915.

Litteratur-verzeichnis, p. 585-593.

Haviland, Maud D. Bionomics and development of *Lygocerus testaceimanus*, Kieffer, and *Lygocerus cameroni*, Kieffer (Proctotrypoidea - Ceraphroïdæ), parasites of *Aphidius* (Braconidae). Quarterly Jour. Micros. Sci. new ser. no. 257 (v.65, pt. 1), p. 101-127, illus. December, 1920.

Bibliography, p. 126-127.

Hess, R. A. Der forstschutz... 4 aufl. 2 v., illus., plates. Leipzig, (etc.) B. G. Teubner, 1914-1916.

Hill, G. F. Relationship of insects to parasitic diseases in stock. Pt. II. Certain points in the life history of *Melophagus ovinus* Linn., the sheep louse-fly, or "sheep-tick." Proc. Royal Soc. Victoria, v. 31 (new ser.), Pt. 1, p. 77-107.

Montana - Live stock sanitary board. (Contribution) v. 1, no. 3, January, 1921. (Helena? 1921.) Contents: Preparation of a crude oil emulsion dip with plans for the construction of a dipping vat, chutes and corrals and directions for dipping cattle affected with cattle scab.

Sorauer, Paul. Manual of plant diseases. Ed. 3. By Prof. Paul Sorauer in collaboration with Prof. Dr. G. Lindau and Dr. L. Reh. Translated by Frances Dorrance. v. 1. Non-parasitic diseases, by Paul Sorauer, Berlin. 888 p. (in 10 pts.) illus. Wilkes-Barre, Pa., The Record Press, 1914-1920.

Stitt, E. R. Practical bacteriology, blood work and animal parasitology, including bacteriological keys, zoological tables and explanatory clinical notes... 6th ed., rev. and enl. 633 p., illus., plates. Philadelphia, P. Blakiston's Son & Co. (1920.)

Tullgren, Albert Svenska insekter-en orienterande handbok vid studiet av vortlands insektafauna. a. Alf. Tullgren... och Eimar Wahlgren... Hft. 1, illus., col. plates. Stockholm, 1920.

Van Duzee, M. C. The dipterous genus *Dolichopus* Latreille in North America. By M. C. Van Duzee, F. R. Cole, and J. M. Aldrich. 304 p., 16 plates. Washington, Government Printing Office, 1921. (Smithsonian Institution. U. S. National Museum Bulletin 116.)

Wesenberg-Lund, C. J. Contributions to the biology of the Danish Culicidae... Copenhagen, Hovedkommissionaer: Andr. Fred Höst & Sohn, Kgl. Hof-boghandel Blanco Lunos Bogtrykkeri, 1920-21. 210 p., 21 plates. (D. Kgl. Danske Vidensk. Selsk. Skrifter. Naturv. og mathematisk Afd. 8, Raekke, VII, 1. At head of title: Mémoires de l'Academie royale des sciences et des lettres de Danemark, Copenague, Section des sciences, 8me serie, t. VII, no. 1. List of literature, p. 198-208.

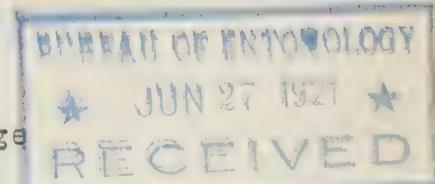
**MONTHLY LETTER OF THE BUREAU OF ENTOMOLOGY
UNITED STATES DEPARTMENT OF AGRICULTURE**

Number 85

May, 1921

TRUCK CROP INSECT INVESTIGATIONS

F. H. Chittenden, Entomologist in Charge



J. E. Graf, in charge of field work in Mexican bean beetle control at Birmingham, Ala., has recently advised the bureau that the Mexican bean beetle has been found in Georgia along the line of the Alabama Great Southern Railway between Rising Fawn and the Alabama line.

Only small sums are at present available for quarantine and control measures by the States of Alabama and Georgia. The quarantined areas now in force will, however, be extended to include the small infestations in Tennessee and Georgia and every effort will be made to restrict the further dissemination of the beetle from these outlying points of infestation. It is probable that a branch research station will be established in the vicinity of Chattanooga for a comparison of the conditions there with those encountered at Birmingham.

R. W. Allen has been appointed to assist Neale F. Howard in the Birmingham research laboratory with regard to the chemistry of new insecticides which it is proposed to apply to the Mexican bean beetle.

The following have been appointed to act as district inspectors in connection with the enforcement of Quarantine No. 50 against the Mexican bean beetle: J. D. Waugh, F. I. Jeffrey, E. G. Small, G. B. Warren, and H. L. Weatherby.

B. L. Boyden, in charge of field work in sweet-potato weevil investigations, reports that in spite of conditions incident to the unusual season in northern Florida, such as the drought which has materially delayed draw distribution, sweet-potato planting from certified weevil-free draws is now almost completed. Only about 150,000 more draws will be required. All of the growers on infested properties have signed contracts and the outlook is exceptionally good for a successful season.

C. H. Batchelder of the Maine Agricultural Experiment Station has been re-appointed to conduct cooperative experiments in the control of insects which transmit the potato mosaic disease and to make observations on other potato insects in the Aroostook County potato region. He will be stationed at Presque Isle, Maine.

E. S. Roberts has been appointed to assist M. M. High, in charge of the laboratory at Kingsville, Tex., in experimental work on truck-crop insects.

William D. Mecum has been reappointed to assist J. E. Dudley, Jr., in spraying experiments against truck-crop insects at Madison, Wis.

G. Fletcher has been appointed to assist Chas. E. Smith, Baton Rouge, La., in connection with rearing experiments.

BEE CULTURE

E. F. Phillips, Apiculturist in Charge

In cooperation with the Bureau of Chemistry an investigation is being

made of methods of preparing, for provisioning cages for mailing queenbees, candy which will conform with the regulations of the Post Office Department and which will remain soft for some time. Many hundreds of queens are now lost annually from food of poor quality. Jay M. Smith has been appointed temporarily for this work.

J. D. Shaftesbury, a graduate student at the Johns Hopkins University, has been appointed for the summer months to conduct investigations in the changes occurring in the aging of bees.

J. B. Norman, also of Johns Hopkins, has been appointed for the summer and will assist in the effort to determine whether Tarsonomus woodi, the purported cause of the Isle of Wight disease of bees, is present in the United States. There was recently published from the University of Aberdeen the results of the work of Dr. John Remmie and his associates which show the parasitic and pathogenic nature of this species.

The Census data so far issued indicate a decrease in the number of beekeepers on farms but an increase in the number of colonies of bees. Bees in towns and cities are not included in Census returns and as a result most commercial beekeepers are omitted. The increase in the number of colonies per beekeeper is quite to be expected because of the increasing tendency toward the development of specialist beekeepers.

NATIONAL MUSEUM

The National Museum has just received a fine collection of named Ilonidae (Cecidomyiidae, the gall midges), a family of small flies, from Dr. E.P. Felt, State Entomologist of New York.

Part of this material was loaned to Dr. Felt some time ago for study. Dr. Felt has made a special study of this very important family of flies. He has also added quite a number of species new to the Museum collection. This collection comprises about 800 microscope slides and about 40 different kinds of galls, the work of these flies. More than half of the species represented are from the type material. There are about 270 species distributed in 71 genera, of which 174 species are represented by type material.

This collection is now about the second best in the country.

PINK BOLLWORM CONFERENCE

Fourteen cotton-growing States were represented at a conference called by the Department of Agriculture in Washington May 16 to consider the measures for eradicating the pink bollworm from the United States. The delegates attending included representatives from the

important cotton, farm, and educational associations of their States and appointees of the Governors. The report drawn up by the committee nominated by the State delegations was adopted unanimously by the conference. It was agreed that the presence of the pink bollworm within our borders is the most serious menace that has ever confronted the cotton-growing industry in this country, but that considering the present status of the pest and the evidence presented there is still a reasonable opportunity for eradicating it by following out the policy of the Department of Agriculture.

It was recommended that as this pest menaces the entire cotton-growing industry the burden of its control should be shared by the Federal Government and by the States actually infested. It was further recommended that the States provide legislation giving ample authority through the agency of non-cotton and regulated zones for such regional control as is necessary for extermination. The Texas delegates, who represented the important farming interests of that State, pledged full support in securing the necessary legislation and cooperation on the part of Texas.

MISCELLANEOUS NOTES

The Chief of the Bureau attended the New Jersey Antimosquito Society's Annual Convention at Atlantic City late in April, and then went to Ithaca for consultation with Professor C. R. Crosby and Professor M. D. Leonard in regard to cooperative work against the ox warble which will be begun this season in certain counties in New York. During early May he visited Mound, Ia., and Tallulah, La., for consultation with Capt. D. L. Van Dine and Dr. W. V. King in regard to the mosquito work at Mound, and Mr. B. R. Coad at Tallulah in regard to the cotton boll weevil campaign for the summer. Later he visited Albany and Scotia, N.Y., with Dr. E. P. Felt, Mr. D. J. Coffrey, and Dr. George G. Atwood for consultations concerning certain phases of the European corn borer investigations.

Dr. J. L. Gruintance is absent on a trip to New Orleans to organize the work against the camphor scale.

Dr. C. L. Marlatt has just returned from Manhattan, Kans., where he was given the honorary degree of Doctor of Science by the Kansas State Agricultural College.

Dr. Demetrius Borodin, formerly Chief of the Entomological Experiment Station at Poltava, Russia, has spent some weeks in Washington translating some of our publications into the Russian language for future use in Russia when conditions over there shall have become more stable. Doctor Borodin has told us much of Russian conditions and brings exact news of a number of Russian Entomologists. He is at present working at Cornell University for a short time.

Mr. F. O. Bain, one of the last graduate Carnegie students who will be sent to this country by the British Government, is expected in Washington on June 8. He has been studying since October at Cornell University and is now about to make a tour of the country. He will visit a number of the field laboratories of the Bureau and those members of the force connected with the laboratories are urged to show Mr. Bain every possible courtesy and give him full information about anything that he finds of especial interest. He will return to Cornell University for a month's additional study for submitting a thesis for a Masters' Degree and will then return to England. He expects eventually to work in South Africa.

LIBRARY

Mabel Colcord, Librarian

NEW BOOKS

Carpenter, G.D.H. A naturalist on Lake Victoria, with an account of sleeping sickness and the tsetse-fly. 333 p., illus. col. pl., charts, map. London, T. Fisher Unwin, Ltd., 1920.

Cuisholm, G.E. Handbook of commercial geography. 566 p., map. ed. 8. London, Longmans, Green & Co., 1919.

The Cotton Yearbook 1921, vol. 16. Compiled for the "Textile Mercury" by S. Ecroyd. 708, ccxxxviii p., illus. Manchester, Marsden & Co., 1921.

Czapek, Friedrich. Biochemie der pflanzen. v. 3, ed. 2. 852 p. Jena Verlag von Gustav Fischer, 1921.

Hewley, R.C. The practice of silviculture, with particular reference to its application in the United States. 352 p., illus. N.Y., John Wiley & Son; London, Chapman & Hall Ltd., 1921.

References, p. 291-292.

Appendix - Forest terminology, p. 299-341.

Icofmans, S. De almsmitkever (Rhynchophorus ferrugineus Oliv.). 90 p., 11 pl. Batavia, Ruygrok & Co., 1920. (Mededeelingen van het Instituut voor Plantenziekten No. 43.)

Lutz, F.E., and Cockerell, T.D.A. Notes on the distribution and bibliography of the North American bees of the families Apidae, Meliponidae, Bombidae, Eullossidae, and Anthophoridae. N.Y., Dec. 8, 1920. (Bulletin of the American Museum of Natural History, N.Y., v. 42, art. 15, p. 491-641.

McDougall, R.S. Insect and arachnid pests of 1919. (Trans. Highland and Agr. Soc. Scotland, ser. 5, v. 32, p. 152-192, Edinburgh, 1920.)

Manson, Patrick. Manson's tropical diseases... 7th ed. rev. and enl. 960 p., illus., 27 col. pl. N.Y., William Wood and Co., 1921. Philip H. Manson-Bahr, editor.

Marshall, C.E., ed. Microbiology a text book of micro-organisms, general and applied. Contributors: P.T. Pioletti, R.E. Buchanan ... (and others). 3d ed. rev. and enl. 1043 p., illus. Philadelphia, P. Blakiston's Son & Co., 1921.

Percival, John. Agricultural botany. ed. 6. 839 p., illus. London, Duckworth & Co., 1921.

Russell, H.A. Duke of Bedford and Pickering, Spencer. Science and fruit growing. 348 p., illus. London, Macmillan & Co., Ltd., 1919. Insecticides and fungicides, p. 145-195. Insects, p. 196-229.

U.S. Geographic Board. Fifth report, 1890-1920, prepared by Charles S. Sloane. 492 p. Washington, Government Printing Office, 1921. (Decisions of the U.S. Geographic Board, 1890 to 1920.)

Zimmermann, A. Dytiscidae, Haliplidae, Hygrobiidae, Amphizoidae. 321 p. Berlin, December 15, 1920. (Schenkling, S., ed. Coleopterorum Catalogus, pars 71, ed. V. Junk.)

MONTHLY LETTER OF THE BUREAU OF ENTOMOLOGY
UNITED STATES DEPARTMENT OF AGRICULTURE

Number 86-87

June-July, 1921

CEREAL AND FORAGE INSECT INVESTIGATIONS

W. R. Walton, Entomologist in Charge

Mr. W. R. Walton returned to Washington June 20 after an extended inspection trip to the southern and southwestern field stations operated by Cereal and Forage Insect Investigations, including an inspection of the region of northern Texas recently attacked by the green bug, and visiting the field laboratories in San Antonio, Tex., and Tempe, Ariz. In Arizona the party was joined by Dr. Oscar C. Bartlett, assistant State entomologist, and portions of the dry farming regions of northern Arizona were visited.

C. K. Fisher, of the Wichita, Kans., force, resigned from the service June 30 for the purpose of entering the States Relations Service in Virginia.

W. B. Turner of the corn borer investigations has been transferred to Cereal and Forage Insect Investigations and detailed for duty at the Sacramento, Calif., station, under C. M. Packard. Mr. Turner's transfer became effective July 1.

E. M. Searls of the Silver Creek (western New York) corn borer force has been transferred to Truck Crop Insect Investigations under Dr. F. H. Chittenden, and detailed for duty at Madison, Wis.

R. H. Van Zwaluwenburg has tendered his resignation from the Federal entomological service to enter commercial entomology in Mexico. Mr. Van Zwaluwenburg's resignation becomes effective July 30.

D. J. Caffrey and L. H. Worthley visited Washington June 28 for the purpose of attending a hearing held by the Federal Horticultural Board with a view to the extension of foreign quarantine No. 41 on account of the European corn borer. After leaving Washington Messrs. Caffrey and Worthley visited the Silver Creek area in western New York.

Thomas R. Chamberlin of the Salt Lake City laboratory recently visited Washington on his way to the European Parasite Laboratory, at Hyeres, southern France. While in France Mr. Chamberlin will study the insect enemies of the alfalfa weevil for the purpose of collecting and shipping to Utah and other infested territory the natural enemies of this serious pest.

W. J. Phillips of the Charlottesville, Va., laboratory, recently visited Washington for the purpose of consultation. Mr. Phillips reports the season as exceedingly unfavorable for the jointworm investigations, the experimental plots at Warrenton, Va., having been abandoned for the season because of lack of material.

-2-

John Stuart Pinckney, a graduate of Clemson College, S. C., has been appointed field assistant and assigned to the Wichita, Kans., laboratory for duty on the Hessian fly investigations under J. R. Horton. Mr. Pinckney reported for duty July 22.

TRUCK-CROP INSECT INVESTIGATIONS

F. H. Chittenden, Entomologist in Charge.

D. M. Dowdell, jr., and M. P. Foshee have been appointed to act as district inspectors in connection with new infestations of the Mexican bean beetle.

F. M. Hull has been appointed to assist M. M. High, in charge of the laboratory at Kingsville, Tex., in experimental work on the sweet-potato weevil and truck-crop insects in the Rio Grande Valley.

J. E. Graf, in charge of field work in Mexican bean beetle control at Birmingham, Ala., and B. L. Boyden, in charge of sweet-potato weevil eradication in Florida, visited Washington for the purpose of conferring with Bureau officials regarding the work which they have been conducting during the past few seasons, discussing the results attained, and mapping out their plan of work for the coming season.

E. M. Searls has been transferred from the corn-borer work in Massachusetts to Madison, Wis., to assist J. E. Dudley, jr., in the investigation of the potato leafhopper and the striped cucumber beetle.

J. W. McGlamery has been appointed to the position of scientific assistant in entomology, to assist B. L. Boyden in the sweet-potato weevil eradication work in Florida.

R. H. Turner and W. P. Whitlock have been appointed as field assistants in Mexican bean beetle control, to conduct scouting in the infested territory.

Prof. H. F. Wickham of Iowa State University has received a temporary appointment with this office for the purpose of making a trip to Mexico the latter part of July to secure parasites and other natural enemies of the ladybirds of the genus Epilachna for introduction into the region infested by the Mexican bean beetle in the southeastern States. Professor Wickham is well known to entomologists as a collector and has had considerable experience with the Coleoptera of southern Mexico. He will enter Mexico at Vera Cruz and work in southern Mexico and Guatemala during his engagement with the Bureau of Entomology. M. M. High will accompany Professor Wickham on this investigation and will also devote some time to the natural enemies of the Colorado potato beetle and related species of Leptinotarsa, many of which inhabit the same regions as Epilachna. A look-out will be kept for natural enemies of the sweet-potato weevil. If anything promising is found along this line which could be safely introduced into the United States for the repression of these three pests, Mr. High will be able to continue this work when Professor Wickham is

recalled to the chair of entomology at Iowa.

The Department through the Federal Horticultural Board announces the release of Alabama from the quarantine against the Mexican bean beetle, effective July 23, 1921. This action has been decided upon on account of recent developments in the scouting campaign conducted against the pest which has shown a much greater distribution than was estimated at the end of last season. At the time the quarantine was promulgated the infested territory was believed to be confined to 13 counties in Alabama, covering an area of about 3,500 square miles, lying in the mineral district in north-central Alabama. Scouting during the present summer shows that the beetle is present in injurious numbers over about 10,000 square miles in the States of Alabama, Georgia, and Tennessee, and is distributed, though as yet thinly, over an additional 20,000 square miles in these States and in Kentucky and South Carolina. At the present time, the infestation covers 30 counties in Alabama, 26 in Georgia, 1 county in Kentucky, 1 in South Carolina, and 27 counties in Tennessee. Scouting is being carried on at the present time to determine whether the infestation reported from Thomasville, Ga., is an isolated one or part of a large general infestation adjoining the southern boundary of the present known infested area. At present, the insect is known to be within 16 miles of Mississippi, 10 miles of Florida, 3 miles of North Carolina, and 23 miles of Virginia. It is evident from the present distribution of the insect east of the Mississippi River either that the original spread is much greater than was originally believed possible or that the original introduction took place at a date several years earlier than the reports would indicate. In either case, the continuation of the quarantine seems unjustifiable in the light of present information, as an economic loss through its enforcement would more than counterbalance the gain.

FRUIT INSECT INVESTIGATIONS

A. L. Quaintance, Entomologist in Charge

H. F. Willard, in charge of the Bureau's laboratory at Honolulu, Hawaii, who has been spending some time in the States, has now returned to Honolulu to resume his studies of the Mediterranean and other fruit flies.

John B. Gill, who has been assisting in connection with peach investigations at Fort Valley, Ga., has now returned to his permanent headquarters at Brownwood, Tex., where he will resume his pecan insect investigations.

A. T. Speare is now at Orlando, Fla., to continue his investigations of fungous parasites of citrus fruit insects.

Prof. J. G. Sanders, Dr. T. J. Headlee, and Dr. A. L. Quaintance visited the Japanese beetle laboratory at Riverton, N. J., on July 19, and in company with C. H. Hadley and other members of the scientific force went over in some detail the status of the control and other operations under way. The Japanese beetle was found to be more abundant than usual, and a correspondingly larger amount of injury to foliage of various kinds was in evidence.

PEE CULTURE

E.F.Phillips, Apiculturist in Charge

James I. Hämbleton, formerly of the University of Wisconsin, has been appointed apicultural assistant beginning July 1. He will be located in Washington, D. C.

E. L. Sechrist will attend the beekeepers' meeting during Farmers' Week at the Virginia Polytechnic Institute, Blacksburg, Va., August 3.

Dr. E. F. Phillips will attend the beekeepers' meeting during Farmers' Week at the Connecticut Agricultural College, Storrs, Conn., August 3 and 4, and the annual field meeting of the Eastern Massachusetts Beekeepers' Association at Dedham, Mass., August 6.

The third beekeepers' Chautauqua to be held in Wisconsin will begin at Chippewa Falls, August 15. Dr. Phillips will attend.

On September 30 the Bureau of Entomology will discontinue its cooperation in the extension work in beekeeping in South Carolina and Iowa because of shortage of funds. The work will be continued in Wisconsin, New York, Mississippi, and North Carolina.

LIBRARY

Mabel Colcord, Librarian

New Books (June)

Anderson, Ernest The South African locust poison. 20 p.
Pretoria, The Government printing and stationery office. 1920.
(Union of South Africa. Dept. Agr. Science Bul. 15.)

Delessert, Adolphe Souvenirs d'un voyage dans l'Inde execute de
1834 a 1839. 2 pts., plates, map. Paris, Fortin, Masson et Cie,
etc. 1843.

Forel, A. H. Le monde social des fourmis du globe compare a celui
de l'homme. Genève, Librairie Kundig, éditeur, 1921.
Pt. 1. Génèse, formes, anatomie, classification, géographie
fossiles. 192 p.

Grouvelle, A. H. Mémoires entomologiques - études sur les coléoptères.
2 v. Paris, 1916-1917.

Henderson, I. F., and Henderson, W. D. A dictionary of scientific
terms, pronunciation, derivation, and definition of terms in
biology, botany, zoology, anatomy, cytology, embryology, physiology.
354 p. Edinburgh and London, Oliver & Boyd, 1920.

Howe, R. Heber, Jr. The distribution of New England Odonata, p. 105-133.
Boston, Printed for the (Boston) Society of natural history, May, 1921.
(Contribution from the Entomological Laboratory, Bussey Institution,
Harvard University No. 186.)

Hutchinson, C. M. Lebrine in India. p. 177-245, Calcutta, 1920. (India
Dept. of Agr. Memoirs. Ent. Ser. v. 1, no. 8, Nov., 1920.)

Janet, Charles. Recherches sur l'anatomie de la fourmi et essai sur la
constitution morphologique de la tete de l'insecte...205 p., illus.,
15 pl. Paris, C. Carre & C. Naud, 1900.
Liste des auteurs cites, p. 196-203.

Jarvis, Edmund, An account of a new moth borer of sugar cane (family
Tineidae); together with further notes on the pyralid moth borer of
cane (Polyocha sp.) (Queensland - Bureau of Sugar experiment stations,
Division of entomology, Bul. 11.)

Lassalle, C. F. Malaria report. Report on Anopheles survey of the Colony
of Trinidad and Tobago. 218 p., maps. Trinidad, Printed at the
Government printing office, Port-of-Spain, 1920.

Lutz, F. E. How to collect and preserve insects. 4th ed. 22 p., illus.
New York, 1920. (American museum of natural history. Guide leaflet
no. 39.)

Misra, C. S. "The American blight" or "The woolly aphid" Eriosoma
(Schizoneura lanigera, Hausmann). Agricultural journal of India, v.
15, pt. 6, p. 627-635, pl. XXXVII-XLII, November, 1920.

Moss, Miles, Sphingidae of Para. Early stages, food plants, habits, etc.
(Novitates zoologicae, v. 27, no. 2, p. 333-512, 11 pl. Nov., 1920.)

Percival, John, Agricultural botany, theoretical and practical 6th ed.,
illus. London, 1921. "Revised throughout." - Preface.

Peterson, Alvah, Some soil fumigation experiments with para dichlorobenzene
for the control of the peach-tree borer, Sanninoidea exitiosa Say.
(Soil Science, v. 11, no. 4, p. 305-318, pl. 1, April, 1921.)

Root, F. M. Experiments on the carriage of intestinal protozoa of man by
flies. (American Journal of hygiene, v. 1, no. 2, p. 131-152, pl.
VI-VIII, March, 1921.)

Sanderson, E. D. Insect pests of farm, garden, and orchard. Ed. 2, rev.
and enl. by Leonard Marion Peairs. 707 p., illus. New York, John Wiley
and Sons, Inc.; London, Chapman & Hall, Ltd., 1921.
Bibliography, p. 689-691.

Seifert, Otto, Die tierischen parasiten des menschen, die von ihnen hervorgerufenen erkrankungen und ihre heilung. II teil. 506 p., Leipzig, Verlag von Curt. Kambitsch, 1920. Klinik und therapie der tierischen parasiten des mensche.

Thorp, Sir T. E. A dictionary of applied chemistry, by Sir Edward Thorp... assisted by eminent contributors... Rev. and enl. ed. v. 1. London, New York, etc. 1921.

Woodeson, Austin, "Termites" or "white ants" and their attacks on buildings. 29 p., (6) pl. (Colombo, Ceylon), Printed by the Colombo apothecaries Co., Ltd., 1921, References, p. 28-29.

New Books (July)

Bureau of bio-technology, Leeds. Bulletin No. 2. January 1, 1921. Contents: The destruction of stored grain by *Trogoderma khapera* Arrow, by F. W. Mason, p. 27-38, pl. 3; An investigation of the causes of run in pelts in the sweating process, by P. Hampshire, p. 39-49, pl. 4-5.

Cattell, J. McK. ed. American men of science, ed. by James McKeen Cattell and Dean R. Brimhall. 3d ed. 808 p. Garrison, N. Y., The Science press, 1921.

Decoppet, M. Le hanneton. (*Melolontha vulgaris.*) 130 p., plates, maps. Lausanne, Librairie Payot et Cie., 1920.
Index bibliographique, p. 92-96.

Guercio, Giacomo del. Note ed osservazioni di entomologia agraria. 282 p., illus., pl. Firenze, Istituto agricole coloniale italiana, 1918.

Hill, G. F. The white ant pest in northern Australia... Published under authority of the executive committee of the advisory council of science and industry. 26 p., illus., plates. Melbourne, A. J. Mullett, government printer, 1921. (Australia. Institute of science and industry. Bulletin no. 21.)

Ito, Hirovo, On the metamorphosis of the alimentary canal of *Bombyx mori* L. (Tokyo. Imperial sericultural college. Bulletin v. 2, no. 1, December, 1920.)

Lutz, F. E. Field book of insects. Ed. 2, rev. and enl. 562 p., illus., plates. N. Y., G. P. Putnam's Sons; London, The Knickerbocker press, 1921.

Schenkling, S. Scarabaeidae: Cetoniinae. 431 p. Berlin, W. Junk, 1921. (Coleopterorum catalogus... W. Junk, ed. S. Schenkling, pt. 72.)

Schimpfer, A. F. W. Plant geography upon a physiological basis. English translation by W. R. Fisher, rev. and enl. by Percy Groom and I. B. Balfour. 839 p., illus., maps. Oxford, At the Clarendon press, 1903.

Storey, G. ...The present situation with regard to the control of the pink boll worm in Egypt... 16 p., illus. Cairo, Government press, 1921. Egypt. Dept. of agriculture. Technical and scientific service. Bulletin no. 16. Entomological section.

Wiele, Johannes. Biologie und bekämpfung der deutschen schabe (Phyllodromia germanica L.). 140 p., illus. Berlin, Verlagsbuchhandlungen Paul Parey, 1920. (Monographien zur angewandten entomologie. Beihefte zur Zeitschrift fur angewandte entomologie, hrsg. von K. Escherich, no. 5 (Beihefte 1 zu Band VII).,

MONTHLY LETTER OF THE BUREAU OF ENTOMOLOGY
UNITED STATES DEPARTMENT OF AGRICULTURE

Number 88

August, 1921

TRUCK-CROP INSECT INVESTIGATIONS

F. H. Chittenden, Entomologist in Charge

Neale F. Howard, in charge of research work on the Mexican bean beetle, reports that the damage by this species in the district around Birmingham, Ala., is again extremely serious, most of the Lima beans, garden beans, and field beans being already completely destroyed (August 9). The third generation of beetles has been completed, and indications are that a fourth, and possibly a fifth generation will be secured before frost. At the present time, there is a considerable migration of adults, and observations and experiments on length of flight tend to show that considerable distances may be covered.

In addition to food plants already reported, which include the various species of *Phaseolus* (garden and Lima beans), *Vigna* (cowpea), *Dolichos* (hyacinth bean), and *Glycine* (soy bean), a number of new hosts are reported, including velvet bean, alfalfa, Adzuki bean, and plants of the genus *Desmodium*. In the latter instance, injury is particularly severe. In a bean garden examined, a number of plants of beggar-weed were separated by a strip of cowpeas from several rows of badly infested Lima beans. The cowpeas were only slightly injured, while the beggar-weed was heavily infested, containing all stages of the beetle abundantly. Apparently an abundant and widely distributed wild host plant which insures the establishment of the beetle has thus been adopted.

Studies of native natural enemies and the introduction of beneficial insects from other sections of the United States are receiving serious attention. The spotted ladybird (*Megilla maculata*) has been observed to feed extensively upon the eggs. A shipment of coccinellids from California has also been tested, and recently, through A. F. Burgess, 25 pairs of the predacious ground-beetle *Calosoma sycophanta* have been under observation. An egg parasite of *Lema trilineata* is also the subject of tests regarding the possibility of its transference to the eggs of the bean beetle.

Mr. Howard, accompanied by L. L. English, field assistant, recently visited the vicinity of Chattanooga, Tenn., for the purpose of making observations on bean-beetle infestation in that area. The infestation in that vicinity and in northern Georgia is light as compared with Birmingham conditions, and no serious damage has as yet been noted. This tends to substantiate the belief that this region has been infested much more recently than that around Birmingham, Ala.

Under the direction of H. H. Kimball, of the State Plant Board of Mississippi, 30 field men of that organization visited Tuscaloosa, Ala., July 27, for the purpose of observing and familiarizing themselves with the work on the Mexican bean beetle and with its characteristics, since the pest has not as yet been found in Mississippi. Mr. Howard gave a short informal talk on the beetle, its characteristic injury and its habits, and outlined the work

under way by the Bureau office at Birmingham, Ala., while O. Z. Smith, field assistant, conducted the party over a portion of the infested district for a field study of the pest.

FRUIT INSECT INVESTIGATIONS

A. L. Quaintance, Entomologist in Charge

Dwight Isely, who has been in charge of the Bureau's laboratory at Bentonville, Ark., has resigned from the Bureau to accept the position of associate professor of entomology at the University of Arkansas at Fayetteville.

A. J. Ackerman, who has been in charge of the arsenical spray residue work at Sacramento, Calif., will complete his investigations at the close of the present season, and it is planned to return him to Bentonville, Ark., to take charge of the Bureau's laboratory at that place.

SOUTHERN FIELD CROP INSECT INVESTIGATIONS

J. L. Webb, Entomologist Acting in Charge

W. W. Porter, a graduate of the Mississippi Agricultural College, has been appointed a scientific assistant, and is stationed at Crowley, La., where he is studying rice insects in cooperation with the Louisiana Rice Experiment Station.

T. C. Barber has begun work on cactus insects in addition to his work on sugar-cane insects.

T. E. Holloway has been making weekly trips to Crowley, La., in connection with rice insect work. Mr. Holloway and Mr. Barber recently visited the laboratory at Uvalde, Tex., where J. C. Hamlin is collecting cactus insects for the Australian Government.

Geo. N. Wolcott, entomologist of the Insular Experiment Station in Porto Rico, and a collaborator of the Bureau, has completed an excellent paper on the control of the sugar cane moth borer in Porto Rico. Dr. Wolcott shows that tropical conditions make the problem of control different in Porto Rico from that of control in Louisiana.

R. H. Van Zwaluwenburg, who recently resigned from the Bureau to take a position as entomologist with the United Sugars Companies of Sinaloa, Mexico, stopped for a day in New Orleans for a visit to the sugar-cane insect laboratory at Audubon Park.

The following men have been appointed scientific assistants and assigned to the Boll Weevil Laboratory at Tallulah, La.: Roland Cowart, Richard V. Hood, L. R. Lyle, Geo. B. Ray, Geo. L. Smith, W. A. Stevenson, Adolph Thomae, V. V. Williams.

The following temporary employees assigned to the boll weevil laboratory have resigned: L. P. Hodges, Alex. G. McCarty, J. N. Crisler, I. B. Rutledge, S. N. Boyd, H. C. Young.

R. W. Wells, who is engaged in a study of the ox warble, with headquarters at Herkimer, N. Y., recently visited Washington in connection with the editing and completion of a motion picture film of the ox warble.

H. M. Brundrett has been transferred from the Federal Horticultural Board and assigned to the ox warble work at Herkimer, N. Y.

LIBRARY

Mabel Colcord, Librarian

New Books

Alexander, C. P. The crane-flies of New York. Part II. Biology and phylogeny. p. 695-1131, pl. XII-XCVII (Cornell Univ. Agr. Expt. Sta. Memoir 38.) Ithaca, N. Y., Published by the University, June, 1920.

Autenreith, Wilhelm. Laboratory manual for the detection of poisons and powerful drugs...tr. by William H. Warren. 5th Amer. ed. 342 p., col. pl. Philadelphia, P. Blakiston's son & co., 1921.

Bouvier, E. L. Habitudes et metamorphoses des insectes... 321 p. illus. (Bibliotheque de philosophie scientifique.) Paris, E. Flammarion, 1921.

Folger, J. C., and Thomson, S. M. The commercial apple industry of North America. 466 p. New York, The Macmillan company, 1921.

Gebien, Hans. Coleoptera. Tenebrionidae. p. 213-500, illus., pl. 9-11 Leide, Librairie & Imprimerie E. J. Brill, 1920, (Nova Guinea. Resultats de l'Expedition scientifique neerlandaise a la Nouvelle Guinee en 1912 et 1913 sous les auspices de A. Franssen Herdersche, v. 13. Zoologie, livraison 3.)

Holland, E. B., Bourne, A. I., and Anderson, P. J. Insecticides and fungicides for farm and garden crops in Massachusetts. 37 p., illus. (Mass. Agr. Expt. Station Bul. 201) Amherst, March, 1921. Literature cited: Page 35-37.

Illingworth, J. F. A study of natural methods of control for white grubs. 20 p., illus. (Queensland Bureau of Sugar Expt. Sta. Div. Ent. Bul. 12.) Brisbane, Anthony James Cumming, Government printer, 1921.

Kuhnt, Paul. Illustrierte bestimmungs-tabellen der kafer Deutschlands... Stuttgart, E. Schweizerbart'sche verlagsbuchhandlung. 1138 p., illus. Nagerle & dr. Sproesser, 1913.

Martin, J. H. Botany with agricultural applications. Ed. 2 rev. 604 p., illus. New York, John Wiley & sons, inc., 1920.

Nova Scotia entomological society. Proceedings for 1920. No. 6, 89 p., 2 pl. Truro, Printed by order of the Legislature, March, 1921.

Sirodot, S. Recherches sur les secretions chez les insectes. 136 p., pl. 9-20 (Ann. Sci. Nat. v. 10, p. 141-189 and 251-334, 12pl.) Paris, Imprimerie de L. Martinet, 1859.

Reitter, Edmund, Chrysomelidae. I. Tribus Donaciini. Paskau, 1920 (Bestimmungstabellen der europaischen coleopteren, hft. 88) (From Wiener Ent. Zeitung, Bd. 38, 1920.)

U. S. Dept. of Agriculture. Yearbook 1920, 888 p., illus. Washington, Government printing office, 1921.

